Chairman of Technical Committee
Radio Equipment and Systems (TC RES)
Telecommunications and Post Department
Radiocommunications Agency
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To
William S. Caton
Acting Secretary
FCC

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Date
9 July 1996

Enclosure(s)

Our reference
HDTP/RDR/ETSI

Your reference

Subject

Dear Mr Caton,

In my letter to you, I have indicated copies have been sent to

Chairman Reed E. Hundt
Commissioner James H. Quello
Commissioner Rachelle Chong
Commissioner Susan Ness
Richard Smith, Office of Engineering & Technology, and
Mike Marcus, Office of Engineering & Technology.

I do, however, not have the addresses of these officials. Could you be so friendly to provide them with a copy of my letter.

Yours sincerely,

Chris van Diepenbeek
Chairman ETSI TC RES

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To
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Enclosure(s)

Our reference
HDTP/RDR/ETSI

Your reference
ET Docket No. 96-102, RM-8648, RM-8653

Subject
Amendment of the Commission's Rules to provide for Unlicensed NII/SUPERNet Operations in the 5 GHz Frequency Range

Dear Mr Caton,

The European Telecommunications Standards Institute (ETSI) has the charter to develop telecommunications standards for Europe, including the countries represented in the Conference of European Posts and Telecommunications Administrations (CEPT). The membership of ETSI consists of administrations, operators, users and manufacturers, the latter including many based in the United States.

Within ETSI, the Technical Committee Radio Equipment and Systems (TC RES) is responsible for the development of general radio related functional standards and radio certification standards.

Within RES, Subcommittee RES 10 is chartered to develop standards for wireless premises networks, an area that overlaps with the subject of the NPRM 96-193, the proposed designation of spectrum for NII/SUPERNet applications.

ETSI RES 10 is developing a family of standards, that address a variety of high speed wireless premises networks, collectively referred to as HIPERLANs, that operate in unlicensed spectrum. These include wireless LANs, wireless ATM access and wireless remote access and wireless portable infrastructure networks. All of these HIPERLAN types are potential candidates for deployment in the NII/SUPERNet band. The first HIPERLAN standard (HIPERLAN Type 1, Wireless Local Area Networks) has been completed and is ready to enter the final approval process (National Vote).

With that context in mind, ETSI RES 10 offers the following comments on the referenced NPRM:

Comment 1: Spectrum needs

ETSI RES 10 has estimated that the spectrum needed to support the variety of multi-media applications expected to dominate the demands for premises communication services to be 450 MHz.
The 350 MHz proposed in the NPRM is considered a major step in the right direction. However, the fact that 150 MHz is shared with ISM band users is considered detrimental to the ability of users to use their systems for high quality communications services.
Therefore, making available more spectrum in the lower 5 GHz range should be considered, possibly after the final etiquette for access to the NII/SUPERNet spectrum.

Comment 2: Interim Spectrum Access Etiquette

RES 10 notes that the proposed interim etiquette - which was designed for packet data systems - is incompatible with any scheme designed to provide multi-media services or any communications service requiring predictable quality of service, e.g. as are provided by ATM networks.

Therefore the interim etiquette should be limited in application to a subset of the spectrum so as to avoid requirements for backward compatibility with this interim etiquette burdening the development of the final etiquette. A possible solution is to limit the interim etiquette to the 5.8 GHz part of the NII/ SUPERNet band.

Further we note that the interim etiquette is incompatible with the medium access mechanism in the HIPERLAN Type 1 standard (EY-NMPA). The main reason is that this standard implements a priority resolution and contention resolution mechanism in the beginning of every transmission. There is no provision for the maximum channel occupation time of 10 msec.

Comment 3: Final Spectrum Access Etiquette

ETSI RES 10 has evaluated various means of allowing dissimilar systems, e.g. based on CSMA and TDMA techniques. These efforts proved to be in vain and the conclusion is that efficient sharing of a channel is not possible unless the systems involved use the same access protocol.
Therefore is advisable that the final etiquette avoids the choice between either of these classes of systems. This is possible if two assumptions are made: a) that the spectrum is divided into fixed channels and b) that in each location there are always enough channels available to meet the typical user needs for communications services.

The first assumption is reasonable since the NII/SUPERNet applications all address high to very high data rate services. For example, a channel width of 20 to 25 MHz would accommodate a typical data rate of 25 Mb/s while retaining the possibility to achieve higher data rates.

The second assumption is also reasonable. Calculations show that the typical demand in a given area at a typical user density requires 450 MHz of spectrum. However, this level of demand will take time to develop and therefore the proposed designation of the 5.15 to 5.35 GHz could be considered sufficient initially.

Given the above, a simple etiquette can be formulated. Because the assumption is that the spectrum available is typically sufficient to meet users needs in any given area, there is no need to share a channel and the etiquette can be limited to a channel occupation rule

> "if a channel is observed to be not occupied for longer than [20] msec it should be considered free and any system can use it."

Such an etiquette avoids the complex technical arguments underlying the UPCS etiquette. It will be both simple to implement and simple to test during certification testing

Although simple this etiquette might lead to situations where all the available spectrum is used up by systems permanently operating and thus denying other users the opportunity to use it. Therefore additional rules are needed that limit channel occupancy by any system or device in case of near saturation of all the available channels. In our view, these additional rules should be based on simple parameters such as time and energy rather than on communications protocols. Clearly, further work is needed and ETSI members will continue to contribute to industry efforts to develop the final etiquette for the NII/SUPERNet band.

We have written these short comments in the understanding that a broad, world-wide consensus on the use of radio spectrum is desirable - the 5 GHz band should be no exception.

If you have any questions regarding this letter, please contact the undersigned at + 31 50 5222 130 (chris.vdiepenbeek@doz.hdtp.minvenw.nl) or contact Mr Jan Kruys, the chairman of ETSI STC RES 10, the committee in charge of developing the HIPERLAN standards (+ 31 30 60 97529, kruys@lucent.com).

Respectfully submitted,
Yours sincerely,

Chris van Diepenbeek
Chairman ETSI TC RES

cc: Chairman Reed E. Hundt
Commissioner James H. Quello
Commissioner Rachelle Chong
Commissioner Susan Ness
Richard Smith, Office of Engineering & Technology
Mike Marcus, Office of Engineering & Technology